

THE quinquennial meeting and international congress convened by the International Council of Women will be held in London on June 26-July 5. A number of subjects in the progress of which women take active part will be discussed in the various sections of the congress. In the educational section the life and training of the child, primary education, universities, modern educational experiments, technical education, women as educators, co-education, training of teachers, and examinations, will be brought forward. In the professional section, among the subjects of papers and discussions are: professions open to women, and the work of women in physical and biological sciences. Other subjects to be discussed are farming in its various branches as an occupation for women, and the training of women in agriculture, horticulture, and other trades and professions.

IN an address delivered at the Leys School, Cambridge, on Friday last, Mr. A. J. Balfour referred to the educational values of science and literature. In the course of his remarks he said: "I cannot really conceive that any man, however enamoured of scientific method, should for a moment undervalue that insight into human nature and the interests which have always stirred human nature, and the manner in which those interests have been transformed by men of genius from time to time in the imaginative crucible of literature—I cannot imagine that such a training should be undervalued even by the most rigid advocate of scientific method. On the other hand, is it credible that in these days there should any man be found who should undervalue that curiosity about the world in which we live which science cannot indeed satisfy, but towards the satisfaction of which, after all, science is the only minister?" The claims of science are here given fair recognition, and men of science do not usually ask for more than this. Their complaint is that science is too often regarded as the Cinderella among school and university subjects; and it is only of late years that any noteworthy improvements have taken place in her position.

AN interesting account of the "Mosque of the Olive Tree" (Jama-Ez-Zituna) at Tunis, one of the three great centres of Mahomedan learning in North Africa, the others being El Azhar in Cairo and the Great Mosque at Fez, in Morocco, is given in a recent report by Sir Harry Johnston. Over 400 students are usually taught at this University, while there are about 100 professors. The lectures begin at sunrise and continue until sunset, fifteen different lectures usually going on at the same time. Each professor sits cross-legged, with his back against one of the many columns of the mosque, his students grouped about him. Until recently, there was but little method in the instruction; each professor rambled on in his discourse, ranging over any topic on which he cared to impart information, and the students listened or not as they chose. To encourage a more practical education, the State offered the students exemption from military service and from certain taxes if they passed an elementary outside examination; but only four of sixty-six recently succeeded in doing this. In future, it is intended to impress on the management of the mosque that each professor should keep to one subject; that the student should be obliged to take notes, and pass periodical examinations. External lectures on scientific subjects and on matters of present-day interest have also been established, and about 100 students from the mosque now attend these.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, April 27.—"On the Presence of Oxygen in the Atmospheres of certain Fixed Stars." By David Gill, C.B., F.R.S., &c., Her Majesty's Astronomer at the Cape of Good Hope.

The observations described confirm the conclusions arrived at by Mr. F. McClean and Sir Norman Lockyer as to the existence of oxygen lines in the spectrum of β Crucis. From measures of photographs of the spectrum of this star, it is concluded that the whole of the known helium lines within the measured range of spectrum are unquestionably present, as also are all known oxygen lines stronger than intensity 4.

"There remains not the slightest doubt that all the stronger oxygen lines are present in the spectrum of β Crucis, at least between $\lambda 4250$ and 4575 , and this fact requires no further aboratory experiments for its establishment. It is almost

equally certain that there is no trace of true nitrogen lines in this spectrum. . . . Besides hydrogen, helium and oxygen, the spectrum of β Crucis shows the probable presence of carbon (4267.2) and magnesium (4481.17). . . . The spectra of β Crucis, β and ϵ Canis Majoris, and probably β Centauri are all practically identical."

Linnean Society, June 1.—Dr. A. Günther, F.R.S., President, in the chair.—Mr. W. B. Hemsley, F.R.S., exhibited a selection of high-level plants from the collections formerly made by Sir Joseph Hooker, Dr. Thomson, General Sir R. Strachey, and more recently by Captain Welby, Mr. and Mrs. Littledale, and Mr. Arnold Pike in Northern India, Tibet, and Mongolia, many of them from altitudes of 18,000 to 19,200 feet. A selection was also shown from the collections made in the Andes by Sir Martin Conway, Mr. Fitzgerald, Mr. Gosse, and Mr. Whymper, at various altitudes up to 18,500 feet. The principal points referred to were the small size of many of the plants, the protective woolly covering of others, and the general preponderance of the natural order *Compositae*.—On behalf of Mr. Rupert Vallentin, Mr. J. E. Harting exhibited lantern slides of the so-called "Sea-Elephant" (*Macrorhinus elephantinus*), prepared from photographs taken in February last by Mr. Vallentin in the Falkland Islands. After briefly tracing the distribution of this huge seal on various Antarctic and subtropical islands, Mr. Vallentin's notes on a specimen killed in Stanley Harbour were read. This specimen measured 18 feet 11 inches from the end of the trunk to a straight line between the two hinder extremities; the trunk, produced by the inflation of a loose tubular sac of skin above the nostrils, is present only in the male, and measures, when fully extended, twelve inches from the gape. No fresh facts were made known concerning the nature of the food of this animal, described by some writers as herbivorous like the manatee, by others as feeding on mollusca and crustacea like the walrus. In this case the stomach was empty, with the exception of a large number of Nematode worms, specimens of which were exhibited.—Mr. Harting also exhibited and made remarks on some living specimens of the Bank vole (*Microtus glareolus*), recently obtained by Mr. Robert Drane on Skomer Island, Pembrokeshire.—Mr. A. W. Bennett exhibited and described a remarkable Alga from Scotland (*Lynghya* sp.?) possessing a soluble pigment producing a beautiful fluorescent solution.—The President exhibited photographs of four out of eight gigantic tortoises originally brought from Aldabra Island, and now living in the grounds of Government House, Seychelles, and communicated a report on the subject of the present distribution of the species, addressed to the Right Hon. Joseph Chamberlain, M.P., by the Administrator of the Seychelles.—Sir John Lubbock, Bart., M.P., F.R.S., read a paper on some Australasian collembola, figures of which were exhibited.—On behalf of Mr. F. N. Williams, the Secretary read a paper on some *Caryophyllaceae* from Szechuan, with a note on the recent botanical exploration of that province.—A paper was read by Mr. W. T. Calman on the Crustacean genus *Bathynella* (Vejd.), which was shown to be an ally of the important form *Anaspides* (Thom.) originally described in the Society's *Transactions*, vol. vi. p. 285.

Zoological Society, June 6.—Dr. Henry Woodward, F.R.S., Vice-President, in the chair.—Mr. Slater exhibited photographs of the female specimen of Grévy's zebra now living in the gardens of the Société d'Acclimatation, Paris; and read a letter from Captain J. L. Harrington, H.B.M. Envoy to Abyssinia, in which he expressed a hope to be able to bring living examples of this animal home with him when he returned to this country.—Mr. A. Blayney Percival exhibited and made remarks upon some specimens of birds and insects which he had recently brought from the southern districts of British Central Africa.—Mr. G. A. Boulenger, F.R.S., exhibited some living specimens of a Siluroid fish, the "Harmut" (*Clarias lazera*, C and V.), from Damietta, Egypt, collected by Mr. W. L. S. Loat, which were believed to be the first examples of this curious fish imported alive to this country.—Dr. S. F. Harmer, F.R.S., gave an account of specimens of the remains of a deer in the collection of the University Museum of Zoology at Cambridge, obtained from the Forest-Bed series at Pakefield, near Lowestoft, and belonging to the form usually known as *Cervus verticornis*, Dawk. The cranial portion of the skull was well preserved, and the antlers had a spread of six feet, measured in a straight line. The question of nomenclature was considered, with the result that *C. verticornis* of the Forest-

Bed was shown to be, probably, not identical with *C. carnutum*, Laug., but a synonym of *C. belgrandii*, Lart.—Dr. A. Günther, F.R.S., gave an account of a collection of freshwater fishes made by Mr. R. B. N. Walker in the rivers of the Gold Coast. The collection, though a small one, was of considerable interest, as it contained specimens of several forms previously unknown from the Gold Coast. It had led the author to prepare a critical revision of the Gaboon species of *Chrysichthys*, which were numerous and difficult of discrimination. Eight new species were described in this paper, viz. *Petersius occidentalis* and seven species of *Chrysichthys*.—A communication was read from Dr. R. O. Cunningham, containing notes on the structure of Laborde's shark (*Euprotomicrus labordei*), an example of which had recently been presented to the museum of Queen's College, Belfast.—A communication was read from Mr. J. Stanley Gardiner, containing an account of the Astræid corals which he had collected in the South Pacific. The collection contained specimens of twelve genera and forty-eight species, six of the latter being new to science.—A communication was read from Dr. W. T. Blanford, F.R.S., containing the characters of several species of shells of the genera *Streptaxis* and *Ennea* from India, Ceylon and Burma. Of the former genus three species were described as new, bringing up the number of species of this genus, described from Southern India, to eleven. Of the genus *Ennea* two new species were described.

Mathematical Society, June 8.—Lord Kelvin, G.C.V.O., President, in the chair.—The President announced that the Council had awarded the De Morgan medal to Prof. W. Burnside, F.R.S., for his researches in mathematics, particularly in the theory of groups of finite order. Prof. Burnside, who was present, briefly returned thanks for the award, which had taken him by surprise.—Prof. Mittag Leffler, of Stockholm, a foreign member, was admitted into the Society, and made an interesting communication (in French) on the convergency of series. Prof. Elliott, F.R.S., Prof. Love, F.R.S., and Dr. Hobson, F.R.S., offered some remarks, to which Prof. Mittag Leffler replied.—The President spoke on "Solitary waves, equivoluminal and irrotational, in an elastic solid." In the course of his address he showed how greatly mathematicians were indebted to Sir George Stokes, F.R.S. Prof. Love said he had been much interested in the diagrams shown by Lord Kelvin. He afterwards gave a sketch of a paper by Prof. J. H. Michell on the transmission of stress across a plane of discontinuity in an isotropic elastic solid, and the potential solutions for a plane boundary.—The following papers were taken as read: On several classes of simple groups, Dr. G. A. Miller; on theta differential equations and expansions, Rev. M. M. U. Wilkinson; finite current sheets, Mr. J. H. Jeans; (1) on a congruence theorem having reference to an extensive class of coefficients; (2) on a set of coefficients analogous to the Eulerian numbers, Dr. Glaisher, F.R.S.; (1) the reduction of a linear substitution to its canonical form; (2) on the integration of systems of total differential equations, Prof. A. C. Dixon.

Entomological Society, June 7.—Mr. G. Verrall, President, in the chair.—Mr. J. J. Walker exhibited on behalf of Mr. G. F. Mathew a number of interesting Lepidoptera, chiefly from the Mediterranean region, and including amongst others the following: examples of *Thaïs polyxena*, Schiff., var. *ochracea*, Staud., having an unusually deep and rich colour, bred from larvae found at Plataea, Greece; male and female of *Thestor ballus*, Hb., from Alexandria, the male remarkable in being largely marked with orange on the upper side of the front wings; and a singular aberration, from Corfu, of *Melitaea didyma*, Ochs., with central band of black spots very strongly marked on both wings, the other spots being obsolete and the ground colour pale fulvous.—Mr. E. E. Green exhibited a teratomorphic specimen or a zygænid moth, *Chalcosia venosa*, Walk., which he had found at rest on a leaf in Ceylon. In this specimen four wings were present on the left side, the hindmost being almost as fully developed as the normal hind wing on the right side, while the other three appeared to be attached to the meso-thorax. He also showed larvae and pupa of insects in air-tight glass tubes in which a little cotton wool, sprinkled with formalin, had been placed. The specimens, which had been thus preserved for nearly two years, had lost little of their original colour or brilliancy.—Mr. Gahan exhibited pupa-cases of a Longicorn beetle, *Plocederus obesus*, Gah., which were remarkable in being composed almost wholly of carbonate of lime.

It was not known how the pupa-cases were fabricated, but presumably the larvae must possess special lime-secreting glands.—Mr. R. McLachlan read a paper on a second Asiatic species of *Corydalis*, and exhibited the male type of the species described, which he proposed to name *Corydalis orientalis*. He said the first Asiatic species of *Corydalis* was described and figured by Prof. Wood-Mason in 1884, the genus up to that time having been considered to be peculiarly American. Mr. H. J. Elwes communicated a paper on the Lepidoptera of the Altai Mountains, and the Rev. A. E. Eaton a paper entitled "An annotated list of the *Ephemeridae* of New Zealand."

Geological Society, June 7.—W. Whitaker, F.R.S., President, in the chair.—On the geology of Northern Anglesey, by C. A. Matley; with an appendix on the microscopic study of some of the rocks, by Prof. W. W. Watts. The strata which occupy the northern part of Anglesey have been the subject of much controversy, some geologists considering them (with the exception of a few patches in the extreme north) to be pre-Cambrian, while others maintain that they are of Bala age, and that they are an upward continuation of the black slates that everywhere appear to underlie them to the south. The author attacks this problem from its palæontological as well as its stratigraphical side. The contortion, overfolding, cleavage, dislocation, and disruption which the rocks have undergone are described. Disruption is traced from its early stages into "crush-conglomerates." Some of the disrupted rocks are Ordovician, and traces of ancient dykes have been found rent to pieces by the movement, which is stated to be post-Ordovician and pre-Carboniferous. The detached masses of limestone and the isolated "quartz-knobs" of the northern complex are considered to be portions of strata which have suffered disruption in the same way as the thinner hard bands in the crush-zones. The appendix contains notes on some of the rocks from the Green series and the Ordovician system, the quartzites, and the crush-conglomerates.—On an intrusion of granite into diabase at Sorel Point (Northern Jersey), by John Parkinson. In the early pages the general character of this intrusion is described. Following this general introduction, the characters of the granite are described in some detail; then those of the diabase, formerly an ophiitic dolerite. Details of structure of the granite in which absorbed basic material is present, and of the diabase into which acid material has permeated, are dealt with: particular attention being directed to the great alteration which the diabase has undergone—this has frequently amounted to a total reconstitution. In conclusion, points of resemblance and of difference are noted between this district and others; and an interesting slide from Alderney is described, showing the probable extension of such rocks in other directions.

EDINBURGH.

Royal Society, May 8.—Prof. Flint in the chair.—By request of the Council, Mr. C. W. Andrews, of the British Museum, gave an account of his expedition to Christmas Island, with special reference to its geology. The island seems to be a raised atoll resting on a basis of volcanic rocks and Miocene limestones, which in places are some hundreds of feet thick. The rocks forming the highest parts of the island are for the most part dolomitised, and the most recent of the deposits found are beds of phosphate of lime, which cap some of the highest hills on the east and north sides. Formerly existing as a group of islets with a central lagoon, Christmas Island has undergone a succession of movements of elevation, evidenced by the existence of a number of inland cliffs and terraces. At present a narrow fringing reef is forming round the greater part of the coast. The fauna and flora are specially remarkable for the large number of species peculiar to the island. Specially interesting are the two forms of rats (the one being fitted for climbing trees, and the other for burrowing), six species of land-crab, two bats (one flying at midday), several forms of pigeon, and numerous sea birds. As regards the flora, there was no difficulty in understanding how the seeds had originally found a lodgment in the island. One important part of the work of the expedition was to make a collection of the fauna and flora before the settlement of the island led to the introduction of foreign species and the modification or destruction of the endemic forms. Sir John Murray, in emphasising the importance of the scientific work carried out by Mr. Andrews, pointed out that Christmas Island was an illustration of how unexpectedly purely scientific inquiry led to a practical issue; for it was in the course of his investigations

into oceanic deposits that he discovered Christmas Island to be a storehouse of phosphate of lime.

May 16.—Prof. McKendrick in the chair.—Dr. C. G. Knott gave a short note on magnetic strains in bismuth. A slight indication had been obtained that there was a change of form in bismuth when strongly magnetised, but the indication was so slight that it was more prudent meanwhile to reserve judgment.—A communication by Mr. Omund on fog-bows, &c., seen at Ben Nevis since 1887, and a note on fog-bows by Prof. Tait were presented in continuation of former papers.—Mr. R. Forgan exhibited his practical method of enlarging and deepening the field of a compound microscope. The essence of the method consisted in shortening the distance between the object-glass and eye-piece, thereby obtaining a diminution of magnification with a corresponding increase of field. In short, the microscope was made to act somewhat after the fashion of a telescope. One interesting feature was the remarkable depth of focus obtained, so that the florets of a dandelion head could be seen throughout with great distinctness. The Chairman remarked that the form of microscope exhibited should prove very serviceable in the study of circulatory systems when high magnification was not desired.—The Rev. Prof. Duns, in a paper on some remains of Scottish early Post-Pliocene mammals, drew attention to the very important problems—zoological, climatological, and ethnographical—which were associated with the disappearance of animals in recent times. For example, what causes led to the disappearance of certain species, among whose remains no contemporaneous human remains were found? Did the absence of human remains necessarily imply that man had not appeared on the scene? The problems should be looked at both from the biotic and stratigraphical points of view; and it was most desirable that, in their characterisation of extinct species, experts should include a description of the physical and vital conditions of the localities in which these species occurred. The paper included a history and description of the fine mammoth tusk discovered near Ratho, Midlothian, in 1820, of the magnificent Greater Red Deer antlers discovered near Kingskettle, Fife, and other important relics now in the museum of the Free Church College, Edinburgh.

PARIS.

Academy of Sciences, June 12.—M. van Tieghem in the chair.—The jubilee of Sir G. G. Stokes and the centenary of the Royal Institution, by M. A. Cornu.—The angle of inclination of the sides studied with the aid of radioscopy and radiography both in morbid and healthy states, by MM. Ch. Goucharde and H. Guilleminot. The authors have studied more especially the appearances in cases of pleurisy. In recent unilateral pleurisy the diseased side has a smaller amplitude of oscillation than the healthy one, and the side is inclined at a greater angle.—Observations of shooting-stars, made at Athens, by M. D. Eginitis. The observations refer especially to the swarms observed on the nights of October 17, 18, November 3, 8, and 25, and December 6, 7, 11, 12, and 13.—On an extension of a theorem of Mittag-Leffler, by M. E. Phragmén.—Deformation of waves in the course of propagation, by M. P. Vieille.—On the equation of motion of automobiles, by M. A. Blondel.—Trials of instruments destined for experiments on the decimalisation of angles, by M. Caspari.—On the expansion of metallic alloys, by M. H. Le Chatelier. Alloys of copper and antimony, and copper with aluminium were studied, and the results expressed graphically in two curves.—The direct measurement of the osmotic pressure of very dilute solutions of sodium chloride, by M. A. Ponson. The values found for the coefficient i varied between 1.76 and 1.81, agreeing closely with the results obtained by Pickering by the freezing point method.—Rays emitted by an electrified point, by M. S. Leduc. The rays given off from a point connected with an electrostatic machine resemble the violet rays of the spectrum in their effects upon a sensitised plate.—Heat of oxidation of sodium, by M. de Forcrand. From the data given it would appear that the number currently admitted for the heat of oxidation of sodium is too high by about 10 per cent.—On the estimation of hydrogen phosphide in gaseous mixtures, by M. J. Ribau. A criticism of a recent paper by M. Joannis. The author contends that an acid solution of cuprous chloride acts perfectly satisfactorily as an absorbent for phosphoretted hydrogen, provided that care be taken to use an unoxidised product.—Action of iodine on alkalies, by M. E. Pécharé. Action of water upon the double iodides of mercury

with potassium and ammonium, by M. Maurice François.—On copper reduced at low temperature, by M. Alb. Colson. Copper oxide reduced at 200° by hydrogen or by carbon monoxide, gives many reactions that do not occur with copper foil. Thus the metal catches fire in dry bromine, even at -21° C. If the copper is raised to above 280° C., or if exposed to moist air, it loses this property.—On mixed anhydrides of formic acid, by M. A. Béhal. By mixing formic acid and acetic anhydride, heat is evolved, and the cause of this is attributed by the author to the formation of a mixed anhydride, $\text{CH}_3\text{CO.O.CHO}$, which can be isolated by treatment with petroleum ether and fractional distillation.—Contribution to the study of ivy; preparation of hederine, by M. Houdas. The glucoside hederine, $\text{C}_{64}\text{H}_{104}\text{O}_{19}$, obtained from ivy, gives on hydrolysis by dilute acids, rhamnose, a new sugar hederose, and a new substance $\text{C}_{26}\text{H}_{40}\text{O}_4$, to which the name of hederidine is given.—On the form *Oospora* (*Streptothrix*) of the *Microsporum* of the horse, by M. E. Bodin.—On a layer of magnetite with granite at Quérigut (Ariège), by M. A. Lacroix.—On the presence of iodine in the mineral waters of Royat, by M. A. Duboin. Iodine was not present in solution, but only in traces in organic compounds in suspension, '04 mgr. iodine in 1 litre of water.—Bathymetric map of the Azores, by M. J. Thoulet.—Nervous oscillations following unipolar excitation; method for measuring their speed of propagation, by M. Aug. Charpentier.—Ivy and hederine; physiological and toxicological study, by M. A. Joanin.—New researches on the diastatic functions of indigo-bearing plants, by M. L. Bréaudat.—On a parasitic fungus in cancer, by M. J. Chevalier. A comparison of the organism isolated by the author, with that isolated previously from cancer growths by Dr. Bra, showed that the two parasites were absolutely identical.

CONTENTS.

	PAGE
The Experiences of a Zoologist in Australasia	169
American Natural History. By R. L.	170
The Songs of Birds. By H. C. P.	171
Our Book Shelf: —	
Erdmann and Dodge: "Psychologische Untersuchungen über das Lesen."—Baldwin: "The Story of the Mind."—A. E. Taylor	172
Wanklyn and Cooper: "Sewage Analysis."—Ogden: "Sewer Design"	172
Pedley: "The Hygiene of the Mouth, a Guide to the Prevention and Control of Dental Diseases" .	172
Letters to the Editor: —	
The Magnetic Compass and Nickel Cases.—Rev. F. J. Jervis-Smith, F.R.S.	173
Historical Note on Recalescence.—Prof. W. F. Barrett, F.R.S.; Prof. Sir W. C. Roberts-Austen, K.C.B., F.R.S.	173
Harvesting Ants.—Prof. G. H. Bryan, F.R.S. . .	174
Bessel's Functions.—A. B. Basset, F.R.S.	174
Limnology.—Dr. Hugh Robert Mill; The Reviewer	174
"Index Animalium."—C. Davies Sherborn	174
Habits of the Cuckoo.—Wm. H. Wilson	175
Economic Entomology.—Z.	175
Magnetic Perturbations of the Spectral Lines. (Illustrated.) By Prof. Thomas Preston, F.R.S. . .	175
The Dover Meeting of the British Association. By W. H. Pendlebury	180
The Volta Centenary Exhibition at Como. By Prof. G. H. Bryan, F.R.S.	181
United States Geological Survey	182
The Report of the International Aeronautical Society	183
Notes	183
Our Astronomical Column: —	
Tempel's Comet 1899 c (1873 II.)	186
Comet 1899 a (Swift)	186
Spectra of Red Stars (Class III. b)	186
Reminiscences of Darwin—Sir Joseph D. Hooker, G.C.S.I., F.R.S.	187
" Amerind" — A Suggested Designation for American Aborigines	188
Magnetic Observations at Mauritius	189
University and Educational Intelligence	189
Societies and Academies	190